FOURTH REPORT

FROM THE

COMMITTEE

ON

THE DISTILLATION OF

SUGAR AND MOLASSES, &c.

[COMMUNICATED BY THE COMMONS TO THE LORDS.]

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FOURTH REPORT.

THE COMMITTEE appointed to enquire, and report, how far and under what Circumstances, it may be practicable and expedient to confine the DISTILLERIES of the United Kingdom to the use of SUGAR and MOLASSES only; and also what other Provision can be made for the Relief of the GROWERS of SUGAR in the BRITISH WEST INDIA COLONIES; and to report the same, with Their Observations and Opinion thereupon, from time to time, to the House:—and who were empowered to report the MINUTES of the EVIDENCE taken before them:—

HAVE, pursuant to the Order of the House, further examined the Matters to Them referred; and have agreed to the following

REPORT.

YOUR Committee next proceeded to enquire whether any and what Relief might be afforded to the Colonies, by reducing the prohibitory Duty on the importation of Refined Sugar, to a Duty which should be merely equivalent to that on Raw Sugar.

It may be proper to premise, that there is a process called Claying, which does not subject the Sugar to the prohibitory Duty, and makes it liable only to an additional Duty of 4*s.* per cwt., which is not more than proportionate to its additional value. This is, however, not what is meant by Refined, which is, properly speaking, Sugar that has undergone solution, and a fresh granulation, and such Sugar is charged with a Duty of £. 8. 8*s.* per cwt.; which acts as an absolute prohibition of its import.

The advantages which the Planter would derive from refining his Sugar, before he imports it, are these:

First, The immense loss would be avoided which now arises from drainage in the passage, amounting to nearly one-eighth of the whole. This loss to the Planter, if Sugar be estimated at its shipment at the low rate of 25*s.* per cwt. is not less on the whole importation than

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£.600,000 per Annum. It is indeed alledged, that this loss might be avoided by claying, but it appears that the process of claying is not applicable to all Sugars, and, from its increasing disuse, it seems to be regarded as by no means beneficial.

Another benefit to the Planter would arise from the great increase of his Distillery; for every Cwt. of Sugar refined would furnish materials for the distillation of nearly three gallons of Rum, and this additional distillation would be accompanied by no additional expence.

A third benefit to be expected by the Planter would be the reduction of his home Freight. At present the Ships on an average obtain barely one-third of a Freight out, and are therefore obliged to charge two-thirds of their Freight out on their Freight home. Should the Refinery take place to any considerable extent, there would be a large export of Coals and Utensils. Besides, as the Freight home is paid not on the Sugar that is taken on board, but on what is landed, it follows that the Freight of that eighth of the Sugar which is lost on the passage must be charged on the remainder. Were this waste avoided, it is obvious that on this account only the Freight home might be reduced one eighth, without loss to the Ship-owner, and this would be, at the present rate of Freight, a saving to the Planter of about £.300,000 on his whole import.

Lastly, a benefit of no small importance may arise to the Colonies from the number of Europeans which would be wanted in various capacities for the Refinery; and by this means would be obviated the alarming decrease of White Population, which the present distress of the Colonies cannot fail to accelerate. To this may be added, that the Refinery would furnish to a considerable number of the Negroes an employment superior to that of field labour, and thereby contribute to that gradation among them, on which their improvement and well being so much depends.

To the Shipping Interest it does not appear that any injury could possibly occur. Instead of a cwt. of Raw Sugar, the Freight home would be 56 lbs. of Refined, 22lbs. of Bastard Sugar, and three gallons of Rum, which is at least equivalent.

With regard to the Revenue, it is clear that if the Duty laid on the Refined Sugar and the Bastard should equal in amount that of the Raw Sugar which produced it, no loss could arise. In some other points of view the alteration would be beneficial to the Revenue. The waste being avoided, a greater quantity would arrive, and arriving at no additional expence, it might be afforded cheaper. The Consumption thereby promoted, the Duties must also increase. The Revenue would also gain in another way. It has been found impossible to prevent the Molasses produced in the Refinery from getting illegally into distillation, by which the Revenue is materially injured. No such consequence could result from Molasses produced in the West Indies, as the article is not of sufficient value to pay the charge of importation.

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It has been observed, that the Planter loses one-eighth of his Produce; one-eighth of his Capital may therefore be regarded as unproductive. The same remark applies to the Shipping; being obliged to take on board a quantity of Sugar, equal to one-eighth, which does not arrive, it follows that one-eighth of the West India Shipping is also unproductive. Capital, under such circumstances, not only detracts from the income of individuals, but is so much loss of national stock; and in this light must be regarded the two sums before stated, making an aggregate loss to individuals and to the nation of £. 900,000 annually.

It is next to be considered, what effect such alteration of the Duty would have on the Domestic Refinery, for encouragement of which it was obviously first imposed. In as far as the Colonial Refinery might be promoted by such alteration, there can be no doubt but the Domestic Refinery must decrease; and if this effect were extensive and immediate, the greatest injury could not fail to arise to those, who, on the faith of existing laws, had embarked their Capitals in these establishments.

Presuming that the House would not entertain a measure which could have such an effect, without at the same time entertaining a consideration of compensation to the individuals who might be injured by it, Your Committee thought it incumbent on Them to make enquiry as to the amount of these Capitals and the nature of their Investment.

It is stated that there were, two years ago, 364 refining Pans in employ in London alone, but that 70 of these are now out of employ. The number of Pans in other parts of the United Empire are supposed to be 240, and it is presumed that an equal proportion of these, viz. 46, are from the same causes now unemployed. The total then would be 488 Pans in employ, and 116 out of employ.

The Capital requisite for each Pan is stated to be £. 3,000, of which two-thirds are allotted to the Buildings, and one-third to the Utensils. To keep a Pan at work, a further Capital of £. 6,000 in London, and a larger sum in the Out-ports, is requisite for the purchase of Sugar, and to discharge the current Expences. But this latter Capital does not come into the present view, as it would not be engaged were the Refinery to stop. Allowing then £. 3,000 for each Pan, it would amount to £. 1,464,000 for those that are in employ, and £. 348,000 for those which are out of employ. But as this latter Capital may perhaps at any rate not become again productive, it would hardly be reasonable to allow for it as though it were so at present, and perhaps half the value only might be considered as liable to depreciation. This deduction would leave the total of the Buildings and Utensils subjected to loss at £. 1,638,000; this would not however be total loss, for many of the Buildings would be convertible to other purposes, and of all the Site and Materials would retain their value, neither would the Utensils be entirely lost. An estimate of this nature cannot be expected to be exact, but it is perhaps not wide of the mark to

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say, that the total eventual loss would be one-half of their cost, or £.819,000.

Your Committee thought it right to present to the House the extreme case, in order to shew that even the extreme case could not occasion a Loss equal to that which arises *annually* in the present system.

This extremity could however hardly occur. Your Committee have already observed, that in a matter so new, it is impossible to say what difficulties might arise, entirely to obstruct the progress of Refinery in the West Indies. At any rate it is probable, that from want of Capital there, such progress would be very gradual, and that the Colonial Refinery would at last be confined to such Sugars as are exposed to the greatest waste in the passage, and are least able to pay their Freight in a Raw state. Thus it may be supposed that ultimately not above one-half of the Domestic Refineries would be superseded by those of the West Indies; and therefore not above half the above-mentioned injury could arise, and even this would be rendered less by its being gradual, and in great part remote.

So much however is certain, that in as far as the measure shall produce any effect, that effect will be highly beneficial to the Planter and the Nation, and that the benefits arising from it, will furnish ample Funds for compensating any injury that it could produce. On the other hand, should the Refinery not succeed in the West Indies, it cannot be imagined that from an unsuccessful speculation any serious injury could arise to the Refiners of this Country.

In the course of Their enquiries, it has appeared obvious to Your Committee, that effectual Relief to the West Indian Colonies was only to be expected in one of the three following ways: a change of their staple commodity Sugar for some more lucrative produce; a reduction of the Expences attending its Cultivation and Sale; or an advance of Price, whether effected by an increase of the Demand or a diminution of the Supply. The first of these modes has been represented as impracticable, and if it be practicable, it could not be effected to so great an extent, and within so short a time, as to prevent the ruin of a great proportion of West Indian Proprietors. Difficulties nearly equal have been alledged to exist, in the way of an efficient reduction of the Expence attending the Cultivation and Sale of Colonial Produce; and against opening new Markets in any of the modes hitherto proposed, a pertinacious struggle has been maintained by different parties, each of them respectively jealous of the alterations suggested in the present system, as likely to be injurious to their particular interests. As to a diminution of the Supply, it could not be effected without loss, except by the discovery of some profitable mode of employing the labour of the Negroes, which (as is above stated) has not yet been devised; and this object, even if it had been otherwise attainable, must have been defeated by the great increase of Colonial Produce created by our recent conquests.

Under

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Under such circumstances, Your Committee could not but favourably entertain the consideration of a plan for employing Sugar in fattening Cattle. The advantages of this scheme, supposing the success to be but moderately answerable to the expectations formed, are obvious and peculiar; the relief it offers would be of the most desirable kind, that of opening a new source of consumption;—within ourselves, and therefore independent of external accident, or war; not interfering with the interest of any body of men whatever; extensive in proportion to the degree in which it should prove beneficial to those great Classes, the Feeders and Consumers of Cattle; and on the favourable supposition of eminent success, it would be attended with this especial advantage, that whatever increase of the Price of Sugar might be occasioned by the increased consumption from this cause, the burthen would fall generally on the whole Country, and might perhaps be even compensated by a reduction in the Price of Cattle, arising from the improvement in the mode of feeding them. The positive Evidence in favour of this plan cannot be stated as very strong; nor indeed could such be expected, while the public attention has not been immediately called to the subject, and experiments have been so discouraged by the cost of the material, as to prevent their having been tried to any satisfactory extent, or in sufficient variety to ascertain accurately either the absolute or the comparative advantage of the practice. A nearly universal current of opinion may however be alledged in support of it; nor would it be difficult to produce high commendatory authorities from Writers upon the subject of aliment in almost every country, with which the observations of the best informed Colonists entirely agree. The apparent results from the Evidence of an Honourable Member of this House appear discouraging; but it does not seem impossible to account for them, without concluding against the general effect of Sugar given in larger quantities and in a less diluted form. Experiments, which it is hoped will prove more decisive, are about to be instituted. As however it is evident, that even the present Price of Sugar, swelled as it is by the Duty, must prove an insuperable bar to its adoption for this purpose, Your Committee thought it adviseable to enquire into the possibility of admitting a Drawback, to be received on all so employed, without risk to the present Revenue, which appears by the Evidence of Mr. Frewin to form the only ground of doubt concerning the allowance.

On private application, Mr. Parkes, a very intelligent practical Chemist, took the subject into consideration, and in a manner very creditable to his public spirit, undertook a course of Experiments, and has detailed in a very clear and able Paper (which will be found in his Evidence) several substances, which appear capable of being so united with Sugar, as to prevent its being again used either for common economical purposes, or in Wash for Distillation, and from which it cannot be again separated without very considerable skill, difficulty, and expence, at the same time, not injuring, as is supposed, its nutritive qualities.

That those experiments are however absolutely conclusive, or of themselves form a sufficient basis for a Legislative provision, Your Committee

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Committee mean not to affirm, and therefore do not at present recommend the indulgence alluded to; but They regard the magnitude of the subject, and the prospect of success, as sufficient to justify Their having entered on the enquiry, and to warrant Their hope, that before the next Session of Parliament it may be prosecuted with such diligence and zeal as completely to develope the truth.

Your Committee are aware, that Relief to the Growers of Sugar has been looked for and solicited in a reduction of the Duty paid on the British consumption of that article. Upon this subject it has not been judged necessary to collect specific Evidence. It is sufficiently obvious, that the Duty in this, as in other cases, ought to be so proportioned as to fall entirely upon the Consumer, whereas it is certain, that for some years past, the Tax on Sugar has been borne not by the Consumer, but by the Cultivator. It is equally certain, that excessive Duties are apt to check consumption.

If a quantity of Sugar, considerably exceeding the average ordinary quantity consumed in the United Kingdom, could, at a reduced price, be forced into consumption, the Revenue, in effecting that object by lowering the Rate of Duty, might find a compensation in the extension of that Duty to the additional consumption. But the Planter, it is evident under his present circumstances, however desirable the object may be to him, is unable to bear that it should be accomplished at his expence, for even now receiving no return of profit by the present price, the only expedient in his power would be to reduce in a ruinous manner his cultivation to that point, which should proportion the supply to the existing demand of the Mother Country. To what extent the consumption of Sugar in the United Kingdom might, under judicious encouragement, be carried, must be matter of conjecture; it appears in the Evidence before Your Committee to have been progressive, even under the heavy accumulations of Duty, which it has sustained, but more rapidly progressive under those low prices at which, with much disadvantage and loss to the Planter, it has lately been sold.

Your Committee think it necessary to state (what the Accounts produced before Them will fully confirm) that the cultivation of the old British Colonies has done little more than keep pace with the extension of British Consumption, and that the excessive glut of the Market is imputable chiefly to the admission of the Produce of the conquered Colonies into the privileges of our own, at a time too, when access to the Foreign Market was subjected to unusual difficulties. Thus circumstanced, the British Colonies appear to Your Committee to have a well-grounded claim upon the Legislature for such Regulations of Duty on Home Consumption, and of Bounty on Exportation, as may place them at least in a situation as advantageous as that which they would have enjoyed had they been left in the exclusive possession of the Market of this Kingdom. Your Committee did, in the first instance, propose a measure which, whilst it promises some immediate relief, must only be considered as a temporary expedient, but they cannot refrain from pressing, under circumstances of such severe distress, the necessity of a reduction of

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of the Duty, unless some other effectual modes of relief shall be adopted. They are clearly of opinion, that if a practicable commutation of any part of the Duty can be devised, such a reduction must afford relief to the Planter, either by diminishing his charges to that amount, if the market price should continue unaltered, or by encreasing the number and competition of Consumers, if the price should fall.

In this view Your Committee recommend to the serious attention of the House a regulation of the Duty on Sugar, to be governed by the average price taken at stated periods, under the authority and directions of the Legislature. A principle which they find recommended by a Committee of the House of Commons, in their Report presented 24th July 1807; and again, with some variation of detail, suggested in the Report of the House of Assembly of Jamaica, dated 13th November 1807.

Your Committee understand that a Bill, materially reducing the Duty on Coffee, is now in its progress through the House, and have not therefore thought it necessary to enter into any particular investigation on that subject. They cannot, however, refrain from expressing their opinion, that this measure, in as much as it may tend to increase the consumption of Coffee, will not only benefit the grower of that article, by relieving the market from the present glut, but may prove of ultimate advantage to the grower of Sugar, by withdrawing a proportion of the Negroes to another object of cultivation. It must also tend to the additional security of the Islands, by increasing the number of that middling class of White Settlers, upon whom their defence so greatly depends.

Your Committee having now gone through the consideration of all the measures that have been suggested to Them in pursuance of the Orders of the House, before They close their final Report, feel it to be Their Duty to state, that nothing has occurred since Their appointment which has opened the prospect of any improvement in the situation of the West Indian Body; and therefore They cannot forbear to press on the serious consideration of the House the several Reports that have been laid on Your Table.

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APPENDIX (A a a a.)

FURTHER MINUTES OF EVIDENCE.

Lunæ, 23° *die Maii* 1808.
(Committee deliberated) - - p. 11.

Martis, 24° *die Maii* 1808.
(Committee deliberated) - - ibid.

Mercurii, 25° *die Maii* 1808.
Sir John Sinclair, bart. M. P. - - ibid.
John Curwen, esq. M. P. - - p. 12.

Veneris, 27° *die Maii* 1808.
Arthur Young, esq. - - p. 13.
John Curwen, esq. M. P. - - p. 14.

Lunæ, 30° *die Maii* 1808.
(Committee deliberated) - - ibid.

Martis, 31° *die Maii* 1808.
(Committee consider and come to a Report) ibid.

Mercurii, 8° *die Junii* 1808.
Henry Shiley, esq. - - - p. 15.

Jovis, 9° *die Junii* 1808.
(The Committee met to consider of the Report) - - - p. 17.

Veneris, 10° *die Junii* 1808.
(The Committee met to consider of their Report) - - - ibid.

Lunæ, 13° *die Junii* 1808.
Samuel Parkes, esq. - - ibid.

Martis, 14° *die Junii* 1808.
Richard Frewin, esq. - - p. 23.

Mercurii, 15° *die Junii* 1808.
John Craven, esq. - - - p. 24.
James Bell, esq. - - - p. 26.

Jovis, 16° *die Junii* 1808.
Richard Frewin, esq. - - p. 28.
James Bell, esq. - - ibid.

Lunæ, 20° *die Junii* 1808.
William Jackson, esq. - - p. 31.

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Appendix (A a a a.)

FURTHER

MINUTES of EVIDENCE

Taken before The COMMITTEE on the

DISTILLATION of SUGAR.

Lunæ, 23° *die Maii* 1808.

Lord BINNING in the Chair.

COMMITTEE deliberate.

[Adjourned.

Martis, 24° *die Maii* 1808.

Lord BINNING in the Chair.

COMMITTEE deliberate.

[Adjourned.

Mercurii, 25° *die Maii* 1808.

Lord BINNING in the Chair.

Sir JOHN SINCLAIR, Bart. M. P. *called, and Examined by the Committee.*

Sir John Sinclair.

Has the Board of Agriculture been taking any ſteps to aſcertain the effects of Sugar in feeding or fattening live ſtock?—The Board of Agriculture is extremely deſirous of promoting the proſperity of the Weſt India Colonies, wherever it is not inconſiſtent with the paramount agricultural intereſts of the mother country. Accordingly directions were given to Mr. Arthur Young, Secretary to the Board, to collect as many facts as he poſſibly could, tending to point out the advantages of the uſe of Sugar in feeding or fattening live ſtock, which are now given in; and a premium has been offered by the Board to the following effect:—"Premium "offered by the Board of Agriculture for aſcertaining the utility of Sugar in feeding "cattle.—To the perſons who ſhall make and report to the Board the moſt "ſatisfactory experiments to aſcertain the quantity, the effect, and the value of Brown "Muſcovado Sugar in feeding or fattening Oxen, Cows, Hogs or Sheep, a piece "of plate of the value of 25 guineas."

Accounts, deſcribing the condition of the ſtock when "put to this food, and the "effect on their fleſh or milk, with the quantity of food eaten, verified by cer-

"tificates

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Sir John Sinclair.

" tificates to be produced on or before the firſt Tueſday in 1809.—N. B. The " Board has been informed, that the addition of Sugar to other food ſhould be " gradual. It has been recommended to be given diſſolved in water, and drunk by " the cattle, or poured on cut Chaff or Bran."

The Board would have been very happy to have given a larger premium, had its funds admitted of it; but full juſtice cannot be done to ſo extenſive an enquiry, unleſs premiums to ſo large an amount as £.1000 in all were granted by Parliament for that ſpecial purpoſe. The fact may then be aſcertained beyond the poſſibility of doubt; and if the public attention were thus attracted to it, if Sugar were found ſo advantageous as will probably be the reſult of the propoſed experiments a great additional conſumption may be the conſequence, much to the advantage both of the Colonies and of the Mother Country.

JOHN CURWEN, Eſq. M. P. *called; and Examined by the Committee.*

J. Curwen, Eſq.

HAVE you made any experiments on feeding live ſtock with Sugar or Molaſſes, and with what ſucceſs?—I have made a number of experiments in giving it to calves, and I am ſorry to ſay without ſucceſs. I have not been in any one ſingle inſtance able to produce any thing like fat. Whether this may have proceeded from my want of proper information, or that Molaſſes, from the nature of them, are not calculated to fatten calves, is what I will not poſitively take upon myſelf to pronounce; but, conſidering it as an object of very great importance, I was anxious to try every means that were likely to give it ſucceſs, eſpecially as in thoſe diſtricts where milk is worth 2*d.* per quart, it is impoſſible to fatten any calf upon milk, without the Farmer's being a conſiderable loſer. The firſt experiment was this: after the firſt four days I gave 2 oz. of Molaſſes boiled in 2 gallons of water (which is the quantity I ſhould have given of Milk). This was given at four times, and it was found to produce a great laxity in the animal. Finding this to be the effect, I added an ounce or nearly an ounce and a half of whiting, and alſo perhaps from 2 to 3 ounces of oatmeal. The calves not making the leaſt progreſs in fattening, I gave the ſame quantity of ground oil cake boiled in water. After various trials I found no ſucceſs, and I applied Sugar, which in ſome reſpects appeared to anſwer better, and did not ſeem to have the violent purgative quality; but I am ſorry to ſay, in no inſtance, after three months experience, was there any hope of producing any thing like fat; but I conceive it may be applied for rearing ſtock, giving a part ſkim-milk. I will not ſay how far, in producing milk, a ſolution of it might not be found to anſwer, mixed with other food; but I deſpair totally of its ever anſwering any purpoſe in fattening cattle, and my grounds for my opinion are, provided it even would fatten, the expence would be ſo great as to afford no proſpect of any advantage from it. The price of Molaſſes being 3½*d.* per lb. 2lb. being the quantity ſtated to be given to an ox of 46 ſtone, 14lb. to the ſtone, the expence of this being 7*d.* it would require at leaſt 8 ſtone of cut ſtraw, which I ſuppoſe to be the cheapeſt food that could be given; and that the price of this through England being not leſs, with very few exceptions, than 2*d.* per ſtone, though in many places, and particularly in London, I believe it to be double, and at preſent certainly three times that ſum, but taking it at the loweſt, at 2*d.* per ſtone, it would amount to 16*d.* per day. and Molaſſes 7*d.* would make 23*d.* I do not believe that in any mode of feeding, 1½lb. of increaſed weight per diem would be obtained upon the moſt improved ſtock in Great Britain; and it is my own opinion, that hay, at 2*d.* per ſtone, would not repay the expence to the Farmer of fattening cattle. The price of grains in London is from 1*d.* to 1½*d.* and the quality certainly of grains muſt be conſidered as more than double the value of any ſtraw whatever; and therefore the price being ſuch, it muſt evidently appear that there is no hope that any profit could ariſe to the feeder. Animals of the weight above ſtated, fed on green food, will conſume 18 ſtone of green food, with from one to two ſtones of ſtraw per day; and upon this ſcale of feeding, in 120 days one of what may be ſuppoſed to be of the beſt breed in England will obtain from 14 to 15 ſtone of weight. In feeding with ſtraw, I conceive it muſt be neceſſary not only to cut it, but it muſt alſo undergo ſome proceſs of boiling or ſteaming, ſo as to moiſten it, which would add to the expence. In feeding calves with Sugar I dared not, even though ſome of the Calves were two months old, increaſe the quantity, becauſe the animal was in a ſtate to have a lax brought on immediately.

Suppoſing the Duty were entirely taken off the Sugar uſed in feeding cattle, and the price thereby reduced more than one half, ſhould you ſtill think the price to be an

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an inſuperable obſtacle to the ſucceſs of this mode of feeding?—I ſtill conceive that with the 16*d.* per day, which the ſtraw would coſt, any addition to that would afford no kind of profit to the Farmer. *J. Curwen, Eſq.*

[Adjourned.

Veneris, 27° die Maii 1808.

Lord BINNING in the Chair.

ARTHUR YOUNG Eſq. *called; and Examined by the Committee.*

CAN you give the Committee any information as to the probability of feeding live ſtock with Sugar or Molaſſes with ſucceſs?—Whatever I know relative to this ſubject has been from reading, and a very little perſonal information from one or two individuals; and the whole is detailed in a paper, which the Preſident of the Board of Agriculture informed me he had delivered in to the Committee. By the information now alluded to, there appeared to me to be great reaſon for ſuppoſing that plants, which have been uſed in feeding and fattening cattle, have been found to anſwer the purpoſe ſucceſsfully in proportion to the quantity of ſaccharine matter they contain, and the application of Sugar itſelf in the Weſt Indies appeared to be uncommonly ſucceſsful. I was therefore induced to ſuppoſe, that ſuch information was a ſufficient recommendation for propoſing that premiums ſhould be offered, in order fully to aſcertain the queſtion. Of myſelf I know nothing at all experimentally, having never tried it in any way whatever. Should it be found upon experience to anſwer, it ſeems to offer a very conſiderable market for Sugar; for on the average of the laſt ſix years, London has conſumed 123,000 oxen, and 827,000 ſheep. Taking the firſt at 800 lbs. and the latter at 80 lbs. it will make 164,000,000 which, for 1,000,000 of people, is 7 oz. per head per diem. Meat brought by carriers, and pork, will make it more than half a pound per head. Suppoſe 2,000,000 of the people not to conſume meat, and deduct 1,000,000 for London, and that the remaining 6,000,000 conſumed half as much as London, or one-quarter of a pound per day, the amount will be 547,500,000 lbs. and London included, it will be 711,000,000lbs.; and further, let us aſſign 1 oz. of Sugar per diem to 80 lbs. of meat for ſix months, feeding the number of animals at that weight will be 8,893,750, and the Sugar conſumed 68,713 hhds. at 13 cwt. per hhd. excluſive of cows for milk, pigs, poultry, &c. Hence it appears that, ſhould experiments aſcertain the propriety of this uſe of Sugar, it would open a very conſiderable market for that commodity. 1 oz. per day, at 4*d.* per pound, is only $\frac{1}{4}$*d.*, and double that expence $\frac{1}{2}$*d.* per day, would certainly be no object, in feeding an animal of ſuch weight, which would amount to 140,000 hhds. *Mr. Young.*

You have adverted to the Weſt India cattle, which are ſuppoſed to fatten well upon Sugar in theſe Iſlands. Is it not chiefly upon the green tops of the cane that they fatten, and does it follow that they would alſo fatten upon Sugar itſelf?—I apprehend it is chiefly the green tops of the cane (ſuppoſing them to be green in crop time); but the experiment of Mr. Millington was not with green tops, but with balls of other food dipped in Molaſſes.

What are the preſent prices of Oil Cake?—Sixteen Guineas for 1000.

Do you conceive the Sugar would be nouriſhing to the cattle, from the bulk of the food, or merely by aſſiſting the nutriment derived from other ſubſtances?—I do not apprehend that the bulk of any quantity of Sugar that could be given would be material in fattening a beaſt; but the quality of the food I conceive to be ſo good that it would render other articles of nouriſhment of a much more fattening nature; for inſtance, you could not fatten a beaſt upon cut ſtraw or bran, but with the addition of a ſmall quantity of Sugar I ſhould apprehend ſuch an effect might take place.

Is Linſeed conſumed to any conſiderable extent in fattening cattle for the market?—It is; and I have met with farmers in Oxfordſhire who cultivated Flax for no other purpoſe but to be uſed to fatten their oxen with.

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Mr. Young.

Is Linſeed Oil dearer than Sugar?—It is 2 *d.* per lb. dearer.

In your opinion, what would be the beſt way to procure the trial of experiments to aſcertain the fact?—By offering conſiderable premiums for the beſt and moſt accurate experiments reported in the moſt ſatisfactory manner; but as it would demand great care and attention, and the inveſtment of a pretty conſiderable ſum of money, it would be neceſſary to have thoſe premiums large and numerous. When the Board of Agriculture offered premiums for aſcertaining the effect of breaking up graſs lands and laying them down again, there were three large premiums, a great number of pieces of plate given, and many gold medals, and the expence of the whole was about £.1000, including advertiſements.

Was that expence borne by the funds of the Board of Agriculture?—The Publick gave £.800, the Board ſupplied the reſt; but for ſuch an enquiry as this, which does not conſiſt in compoſing eſſays but actually making experiments, a larger ſum might be neceſſary for the purpoſe; it might demand £.2000.

Would it not, in your opinion, be proper that this premium ſhould be applied not only to thoſe who ſhall make ſucceſsful experiments in feeding cattle with Sugar, but alſo to thoſe who may diſcover ſome means, by which the Sugar intended for feeding cattle may be rendered unfit for the uſes to which Sugar is at preſent applied, and thereby render it poſſible to give a drawback upon the Sugar ſo employed without injury to the Revenue?—The object is very important, and would certainly be a very proper aim for a premium, but I think it ſhould be diſtinct. Such premium would be claimed in all probability by Chemiſts, who are extremely likely to make ſuch a diſcovery, though not at all likely to become candidates for the other premiums.

JOHN CURWEN, Eſq. M. P. *again called*; *and Examined by The Committee.*

J. Curwen, Eſq.

WHAT is the expence of Oil Cake, and what is the profit attendant upon feeding cattle?—Iriſh Oil Cake is about £.10, but Oil Cake in other places I am not acquainted with the prices of. Where 4 lbs. of Oil Cake is given, eſtimating it at 1 *d.* per lb. which is about £.9. 13*s.* 6*d.* per ton, which would amount to 4*d.* and green food and ſtraw to 8*d.*, I do not conceive at that price there could be any profit ariſing to the Farmer by feeding. The riſe of the markets may occaſionally repay the Farmer, when it would not do ſo at common general prices. Milch cows, kept by the milk-men in London, conſume 12 ſtone of food, or rather better per day, 5 ſt. 6 lb. of grains and 6 ſtone of turnips and 12 lbs. of hay is about the allowance of one of their large cows.

Are you aware of any experiments having been made in feeding Hogs with Sugar or Molaſſes?—No, I never tried it, but I ſhould think them a very likely animal to profit by it.

[Adjourned.

Lunæ, 30° die Maii, 1808.

Lord BINNING in the Chair.

COMMITTEE deliberate.

[Adjourned.

Martis, 31° die Maii 1808.

Lord BINNING in the Chair.

COMMITTEE conſider and come to a Report.

[Adjourned.

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Mercurii, 8° *die Junii* 1808.

Lord BINNING in the Chair.

HENRY SHIRLEY, Esq. *called; and Examined by The Committee.*

Mr. Shirley.

HAVE you made any experiments in the Weſt India Iſlands on the refinement of Sugars?—Finding a loſs of one-ninth of the produce on Sugar in the paſſage to Europe in the raw ſtate, I determined to make an experiment, in order to prevent ſo conſiderable a loſs, and I made an experiment at Spring Garden, in the pariſh of St. George, Jamaica, in 1787. It was an unfavourable year for the quality of the Sugars, which were full of Molaſſes, owing to the ſtorm in November 1786, which had lodged the canes, and thereby prevented their getting ripe. The hhds. averaged 16 cwt. in Jamaica; the weights in England to the buyers averaged 11 cwt. 3 qrs. 17 lb. 16 cwt. weight in Jamaica, deducting the tare, is 1,676 lbs. or 14 cwt. 3 qrs. 24 lb. per hhd. therefore the loſs of ſweets in the paſſage was 3 cwt. and 7 lbs. The Sugars ſold in Briſtol on an average of 47 *s.* and near 1*d.* The charges, including freight, inſurance, commiſſion, &c. amounted to 19/10 *d.* per cwt. and therefore nettcd 27/2*d.* per cwt. A hhd. of Muſcovado, ſufficiently cured and refined by means of Dr. Fordyce's pickled blood, gave me a ſmall tierce of Sugar, which, having been pounded, was entered at Briſtol and paſſed as Muſcovado, paid the ſame charges, and weighed to the buyers 6 cwt. 2 qrs. 7 lb. It ſold at 64 *s.* and, deducting the charges 19/10 *d.* nettled 44/2*d.* per cwt. The Molaſſes from the drips were boiled a ſecond time, and yielded five pots of Clayed Sugar, weighing on an average 32 lbs. Theſe Clayed Sugars were not ſuperior to the Muſcovado, and were ſold with them at about the ſame prices; but the loſs of ſweets in the paſſage to England was not ſo conſiderable, and the five pots yielded in Briſtol 1¼ cwt. With the ſweets I ſaved by this proceſs, I was able to charge 500 gallons of Waſh, which gave me 43 gallons of Rum at the Britiſh market.

SUGAR Refined and Clayed.

Cwt. qrs. lbs.			£.	s.	d.
6	2	7 at 44/2*d.* per cwt. - - - -	15	0	9½
1	1	0 clayed, at 27/2*d.* per cwt. - -	1	13	11½
43 Gallons of Rum, at 2/6 *d.* - - -			5	7	8
			£. 22	2	5

MUSCOVADO SUGAR.

Cwt. qrs. lbs.			£.	s.	d.
11	3	17 at 27/2*d.* per cwt. - -	16	3	9½
			5	18	5½

The profit reſulting from the experiment; from whence, however, there is to be deducted the expence of the utenſils, the coals, &c. and hire of a white Refiner.

How would this affect the ſhipping intereſt in regard to the freights out and the freights home?—I think that any method which will operate to ſave the immenſe quantity of ſweets which are now loſt during the paſſage, would be of great advantage to Government, to the Ship-owners, and to the Planters. There would be a ſmaller quantity in bulk in the freight from Jamaica to Europe, but it would be amply compenſated by the quantity of coals that muſt be ſent to the Weſt Indies, and the utenſils, ſuch as the pots and the drips neceſſary for refining Sugar; and Weſt India ſhips in general are in great want of freight for the ſhips outward bound.

Would this be likely to produce a new and beneficial trade from the Weſt Indies to other parts of Europe beſides Great Britain, if ſuch were permitted?—Weſt India produce was formerly allowed to be ſent directly to the ſouth of Cape Finiſterre, but the permiſſion was clogged with ſo many regulations, that it could not be acted upon. If produce could be ſent directly from the Weſt Indies to the Mediterranean, refined goods could much more eaſily be introduced than Muſcovado Sugar.

Do

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Mr. Shirley.

Do you conceive that if the Refinery of Sugars was to take place to any extent in the West Indies, it would add to the Security of thoſe Iſlands, by cauſing an extenſion of the white population?—It would occaſion a neceſſity for every Sugar Planter, inclined to follow this proceſs, to have an additional white ſervant upon his plantation, becauſe it would create a neceſſity of having a white Sugar Refiner.

Would it contribute to the eaſe and civilization of the negroes, by introducing an occupation of lighter labour and more truſt than what they now have?—It would increaſe the number of the negroes that hold a middle ſtate between the white people and the common labourers.

Do you conceive that the Refinery in the Weſt Indies could be carried to ſuch an extent and take place ſo immediately as materially to injure or to ruin the Refineries eſtabliſhed in Great Britain?—I do not think that Planters in Jamaica would find it their intereſt to refine Sugars further than what is called Lump Sugar. When I ſent to the Briſtol markets Refined Sugars pounded as ſuperfine Clayed Sugars, they were bought by Mr. Henderſon, a principal Sugar-baker there, who deſired my Factor to have the preference of ſuch Sugars, if I ſent any more to that market.

Do you conceive that if the obſtacle to the importation of Refined Sugar were removed, it would be advantageous to carry the proceſs of Refinery beyond the firſt ſtage?—I conceive they could not enter into competition with the Sugar-bakers at this market. It could not be refined in Jamaica cheap enough to enter into any competition with the Sugar-bakers here. They would be able to underſell us.

What is the reaſon you did not perſevere in your experiments?—Becauſe I had only an intereſt in Spring Garden eſtate dependent on the life of another perſon, and the expence of building even there would have been conſiderable; but in ſituations where it is neceſſary to take off the crop very rapidly, ſuch a proceſs would demand buildings far more conſiderable. In the pariſh of St. George's, where Spring Garden is ſituate, we can go on making Sugar the whole year.

Are we to ſuppoſe that it is your opinion, that Sugars brought into this country in the ſtate in which the Sugars alluded to in the account you have given of the experiments you made, would not interfere with the Sugar-refiner of this country to his diſadvantage?—I conceive that it would be of advantage to the Sugar-bakers, in conſequence of the application made to my merchant, for a refuſal of any Sugar that I might ſend to market of the ſame quality.

Do you conſider that importing an article into Great Britain, in a manufactured inſtead of importing it in a raw ſtate, would be advantageous to the Britiſh manufacturers of that article?—I have already ſaid that I did not think we could manufacture Loaf Sugars and enter into competition with the Sugar-bakers in England, but this proceſs would bring the raw material to the Sugar-baker, in a manner more advantageous to him than as common Muſcovado Sugar.

How can the importing the article in a refined ſtate, be importing it in a raw ſtate?—It is not what can properly be called Refined Sugars; it is not Loaf Sugar.

Are you aware that the Britiſh Sugar-refiners make Lump Sugar as well as Loaf Sugar?—I am, but not ſo much for home conſumption as for exportation. I underſtand that a conſiderable quantity of Lump Sugar has been ſold abroad to foreign Sugar-bakers; and we only wiſh to ſend our Sugars to the Sugar-bakers in England in the ſame ſtate; ſaving thereby one-ninth of our produce, which is now waſted, to the great loſs of the Government, and of the Ship-owners.

Are you aware that theſe ground Lumps from Jamaica would anſwer the ſame purpoſe to theſe foreign Refiners, and ſuperſede the uſe of the Britiſh Lump Sugar which is now exported for their Refinery?—My Opinion is, that the Britiſh Sugar-bakers would buy for their own uſe what we ſent to them in Lumps pounded; and that they continue to make for exportation Lumps from the worſt of our Brown Sugars that come to market.

If thoſe ground Lump Sugars from Jamaica are ſo deſirable to the Britiſh Refiner, why are they not equally deſirable to the foreign Refiner?—Becauſe our pounded Lump Sugars from Jamaica would not command any bounty which the Sugar-bakers get at preſent for what they manufacture themſelves.

Would

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Mr. Shirley.

Would the advantage of ſaving the drainage on Muſcovado Sugar, during the homeward bound paſſage, be ſaved juſt as well by claying Sugars as by refining Sugars in the Weſt Indies?—All kinds of Sugars cannot be clayed; and Jamaica in general does not make that kind of Sugar that would be fit to be clayed with advantage.

It appears, by your ſtatement, that the Sugar is diminiſhed by the proceſs of Refinery nearly one half, but that the ſhip-owner would receive a conſiderable compenſation for this diminution of his freight, by the additional quantity of Rum which would be brought to the Britiſh market. Muſt not the quantity of Rum which is brought to the Britiſh market be regulated by the demand for that article?—There is no other market in Jamaica for Rum but the American market, and whatever they cannot ſell to the Americans they are obliged to ſhip home to England, whatever the price may be.

Has not Rum been a very diſadvantageous article of remittance of late to the Britiſh market?—Very much ſo in 1805 and 1806. And this was alſo the caſe with reſpect to the firſt remittances in 1807. The Rum ſold at the end of 1807 came to a better market.

Would not the increaſing the quantity ſent to the Britiſh market, in the way this meaſure would do, tend to make the ſale of Rum more diſadvantageous than it hitherto has been?—We hope not, as we have the greateſt dependence on Government ſupporting the price of Rum in preference to the price of French and Spaniſh Brandies.

Is it thoſe Sugars which will not bear claying that are moſt expoſed to waſte on the paſſage?—It is.

[Adjourned.

Jovis, 9° die Junii 1808.

Lord BINNING in the Chair.

THE Committee met to conſider of the Report.

[Adjourned.

Veneris, 10° die Junii 1808.

Lord BINNING in the Chair.

THE Committee met to conſider of their Report.

[Adjourned.

Lunæ, 13° die Junii 1808.

Lord BINNNIG in the Chair.

SAMUEL PARKES, Eſquire, *called*; *and Examined by The Committee.*

WHAT is the buſineſs in which you are engaged?—A manufacturing Chemiſt.

Mr. Parkes.

Have you made any experiments on the mixture of different ſubſtances with Sugar ſo as to prevent its being uſed for domeſtic purpoſes or for diſtillation, without injuring its nutritious qualities?—I have made a great many experiments, the reſults of which I am ready to ſtate to the Committee.

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Mr. Parkes. [*The Witneſs here read, and afterwards, on the 16th of June, delivered in to the Committee the following Statement.*]

To the Honourable the Committee of the Houſe of Commons, now ſitting on Weſt India Concerns.

Gentlemen,

When I was informed of your inquiries reſpecting the poſſibility of rendering Sugar unfit for common uſe, without deſtroying its nutritious properties, and received your requiſition to engage in the inveſtigation of the ſubject, I loſt no time in inſtituting ſuch a ſeries of experiments as I conceived would be neceſſary to aſcertain the fact.

This being entirely new ground, no Chemiſt having ever engaged in ſuch an undertaking that we know of, I made a great number of experiments, the chief of which I will endeavour to deſcribe, and their reſults, with as much brevity as the nature of the ſubject will permit.

Interwoven with theſe details you will perceive an account of ſome facts already known to Chemiſts; but I was deſirous of furniſhing you with every thing of importance on the ſubject. To this end I have examined a large body of Chemiſtry with great care, and I hope no work has eſcaped me that would have thrown any light upon the inquiries in which you are engaged.

Sugar is ſaid to contain more nutriment in the ſame bulk than any other known ſubſtance;* but how to allow its uſe Duty free for the purpoſe of feeding cattle, and at the ſame time guard againſt any encroachment upon the Revenue now ariſing from it, may be attended with conſiderable difficulties.

The chief difficulty, in my eſtimation, ariſes from the ſoluble nature of Sugar; for if Sugar be mixed with ground Corn, Barley Meal, or other farinaceous matter, which it might be in the preſence of an Exciſe Officer, there would be danger of its afterwards being waſhed out by means of water, the water evaporated, and the Sugar brought again into the market.

Lime. One pound of Water is capable of diſſolving one pound of Sugar. Lime-water renders Sugar ſtill more ſoluble, and deprives it of a part of its ſweetneſs; but as Water takes up ſo ſmall a portion of Lime (300 parts of Water diſſolving only 1 part of Lime), I conceive this would not be a proper means of rendering Sugar unfit for common uſe. Lime in powder, if mixed with Sugar, might perhaps anſwer better, if this would not injure the cattle; and it would prevent the Sugar ſo mixed from being fraudulently uſed for the Still, as Lime, even in ſmall quantities, has the property of rendering Sugar incapable of fermentation.†

An aqueous ſolution of Sugar may be preſerved a long time unaltered if the Sugar be pure, but if mixed with mucilaginous or farinaceous matter, it quickly enters into the vinous fermentation. This property of Sugar is an objection to its being mixed in a ſtate of ſolution with any kind of ground Corn for any conſiderable time before it is intended for uſe.

Sugar is found by analyſis to be a triple compound, conſiſting of 28 parts, by weight of carbon, 8 parts of hydrogen, and 64 parts of oxygen.

Sugar being of vegetable origin, few bodies are capable of uniting chemically with it. Moſt ſubſtances therefore, if mixed with it, would form mere mixtures and not chemical compounds. Potaſh. There is one ſubſtance, however, which mixes readily with Sugar, which deſtroys its taſte entirely, and yet does not decompoſe it. This is a fixed Alkali. If, therefore, Potaſh or Soda be mixed with Sugar, either of them will completely deſtroy its ſaccharine taſte; but the Sugar will not be decompoſed, for it may be recovered unchanged by the addition of ſulphuric acid, which would form an alkaline ſulphate which might be precipitated from the ſolution by Alcohol. Hence it may be ſuppoſed, that the mixture of a ſmall quantity of an Alkali with Sugar would not deprive it of its nutritious qualities.

Having mixed 112 grains of good Brown Sugar with 10 grains of a very ſtrong ſolution of Cauſtic Potaſh, the Sugar loſt its ſweetneſs entirely, and the whole acquired

* See the Papers of Dr. Ruſh, of Philadelphia, on this ſubject.

† On the 4th of Auguſt 1798, Mr. Cruickſhank made the following experiment. He diſſolved two ſeparate ounces of Sugar each in five oz. of water in ſeparate veſſels, and added a two drachm meaſure of yeaſt to each. To the one he afterwards added a little freſh lime in powder, and placed both veſſels in a favourable ſituation for fermentation. In twelve hours one mixture began to ferment, but that containing the lime ſhewed no ſigns of fermentation, though it was continued in a favourable ſituation during a period of twenty-four days. A ſimilar experiment was made with potaſh with the ſame reſult.

a diſagreeable

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a diſagreeable urinous taſte. One cwt. of Sugar would require about 4 lbs. of American Potaſh to reduce it to this ſtate, the expence of which would be about 2/9*d.* or 3*s.* On the mixture of Potaſh and Sugar I poured 3 grains of Sulphuric Acid, diluted with a little water. This reſtored the Sugar to its uſual flavour, the Sulphuric Acid having formed a ſalt by its union with the Alkali. The expence of thus recovering the ſaccharine taſte of the Sugar would be only 1*s.* per cwt.; but as a ſalt would then be in ſolution with it, this would prevent its being applied to common purpoſes, for the affuſion of Alcohol would be too dear an expedient to recover it; and if the ſolution of Sugar and Potaſh were boiled, the Sulphate of Potaſh that might be formed by the addition of Sulphuric Acid could not be ſeparated from the Sugar even by Alcohol. *Mr. Parkes.*

Sugar has the property of rendering Oil miſcible with Water: any cheap refuſe Oil therefore that the Cattle would eat might be mixed with it, and this property would give facility to the mixture.

I mixed immediately 4 grains of Palm Oil with 112 grains of Sugar. The mixture acquired a full taſte of the Oil, ſo as to render it unfit for houſehold purpoſes; but the flavour is ſo grateful, that it is very probable cattle would eat it with greedineſs. Four Pounds of Palm Oil, which on an average would coſt 2/6*d.* would be ſufficient to prepare 1 cwt. of Sugar. Palm Oil.

There is, however, another Oil that would come much cheaper, which might readily be mixed with Sugar, though I have ſome doubts whether cattle could be brought to eat any food with which it were united. What I refer to is Animal Oil, or Oil of Hartſhorn. Oil of Hartſhorn.

A ſingle drop of Oil of Hartſhorn was carefully mixed with 224 grains of raw Sugar (a proportion of half a pound of oil to 1 cwt. of Sugar) and was found more than ſufficient to ſpoil it, both in taſte and ſmell for common uſe. If however cattle would eat Sugar mixed with this Article, nothing could be cheaper, for one penny-worth would be enough for 1 cwt. of Sugar; and it is not very unlikely but that they might be brought to eat it, for it is well known that at firſt all cattle refuſe Oil-cake and afterwards eat it with great reliſh.

Since I engaged in this inquiry I have been informed that cattle will eat rancid Fiſh Oil with avidity; if ſo, ſuch Oil, and eſpecially the dregs of oil, uſually called Oil Foot, which comes very cheap, might be put into the hhds. of Sugar at the Weſt India Docks in the preſence of an officer, and if once poured on Sugar no common expence would ever be able to ſeparate it. Linſeed Oil being more fluid might be poured into the hdds at the cane holes. This would ſo ſpread itſelf through out the whole hhd that I am perſuaded the Sugar could never afterwards be uſed for any domeſtic purpoſe. Moreover, it is well known that Sugar, when mixed with oil, is incapable of the vinous fermentation; this would be an additional ſecurity againſt a fraudulent uſe of it. Fiſh Oil.

Sulphur of Potaſh or Soda has the property of converting Sugar into a mucilaginous ſubſtance not unlike gum. Mucilage and Sugar are both highly nutritive, but they differ in their chemical properties. Sugar is ſoluble not only in Water, but in Alcohol: Mucilage is ſoluble in Water, but inſoluble in Alchohol. Sugar is an eſſential ingredient in all vinous fermentation; Mucilage is incapable of that proceſs. Alkaline Sulphuret.

In order to aſcertain the expence of treating Sugar with an Alkaline Sulphuret, I mixed 14 grains of dry Sulphuret of Potaſh with 112 grains of Sugar. The mixture ſoon became clammy, and loſt all flavour of Sugar. If a ſulphuret of Potaſh were manufactured directly for this purpoſe, a ſufficient quantity for mixing with 1 cwt. of Sugar would coſt near 14*s.* but I apprehend there are common Alkaline Sulphurets which might be had cheap enough, if the cattle would not refuſe the mixture. Reſpecting the nature of this mixture, or the nutritious quality of Sugar when reduced by an Alkaline Sulphuret, it may be remarked that mucilage is very ſimilar in ſome of its properties to Sugar, for many plants which yield Sugar at a certain period of their growth, only contain mucilage at an earlier period. This is the caſe with ſeveral of our wall-fruits. In the operation of malting, the mucilage of the Barley abſorbs Oxygen, and is converted into Sugar. No chemical means, however, has yet been diſcovered of effecting the ſame purpoſe. We can, as you have ſeen, readily convert Sugar into mucilage, but have not yet acquired the means of regenerating Sugar from the ſame mucilage. This circumſtance is in favour of adopting this method for the deterioration of Sugar, if it ſhould be found to agree with the cattle.

Having

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Mr. Parker.

Having moiſtened 112 grains of Sugar with Water, 2 drops of a ſolution of Sulphate of Iron, and two drops of Tincture of Galls were mixed with the maſs; by expoſure to the air this Sugar became quite black, and taſted of Iron very ſtrongly. It would coſt 1*s.* per cwt. to blacken Sugar in this way; but as Oak Bark, or any other ſubſtance that contains the Gallic Acid might be employed inſtead of Galls, it could be done in quantities at leſs expence, and I know of no cheap method by which Sugar thus treated could be rendered again fit for ſale or common uſe. Indeed, if the Gallic Acid were ſeparated from the Gallate of Iron by means of Potaſh, the Sugar might then be fermented and fraudulently uſed for the Still: but this could not be expected to ſucceed, unleſs it were done by an experienced Chemiſt, for an exceſs of Potaſh would render the Sugar incapable of fermentation. And even if the mixture were ſubmitted to diſtillation, it is probable that part of the Iron would come over in the proceſs, and contaminate the Spirit.

Gallate of Iron, or Iron combined with the Gallic Acid.

One hundred and twelve grains of Sugar were mixed with 10 grains by weight of Oil of Vitriol, previouſly diluted with a little Water. This rendered the mixture ſo ſour, that it would be impoſſible to uſe ſuch Sugar for common purpoſes. The Oil of Vitriol alſo blackens it conſiderably. It would coſt 3*s.* or 3*s.* 6*d.* per cwt. to treat Sugar in this way, but a leſs quantity of Oil of Vitriol might be ſufficient, and when mixed with a large portion of other food, I think the acid would not be diſagreeable to Cattle.

Sulphuric Acid, or common Oil of Vitriol.

No experiment was made with Nitrous Acid, becauſe the operation of that Acid on Sugar has been long known to Chemiſts. By its means two new Acids are formed from Sugar, firſt the Malic, and then the Oxalic, Acid, neither of which would be of any uſe as food for Cattle.

Nitrous Acid.

I mixed 112 grains of Sugar with 10 grains of common Alum. Here the Sugar loſt a great portion of its ſweetneſs, and acquired a diſagreeable aſtringent taſte. One cwt. of Sugar would require 10lbs. of Alum for the formation of ſuch a mixture, which would coſt 2*s.* 3*d.* In this and the laſt experiments the Sugar might be completely reſtored by the addition of Nitrate or Muriate of Barytes, which would precipitate the ſulphuric Acid from the Sugar in the one caſe, and from the Earth of Alum in the other; but as both theſe are poiſonous ſalts, no one would think of uſing them to regenerate Sugar for domeſtic purpoſes.

Alum.

One hundred and twelve grains of Sugar were mixed with 20 grains of common Salt. This proportion of Salt deſtroys the ſweetneſs of the Sugar, and renders it unfit for human conſumption. If Government would allow the Farmer waſte Salt free of Duty, of which a ſufficient quantity may be be had at the Salt-works, called the "pickings of the pans," at 1*s.* or 10*s.* per ton, it appears to me, that this would be the moſt ſuitable, convenient, and œconomical article that could be uſed to prevent the Sugar from being again brought into common conſumption. Cattle and horſes are fond of it, it is known to agree well with them, and there is no cheap way by which the Sugar could be ſeparated from it. Cattle are ſo fond of Salt, that they will even devour large quantities of Malt if mixed with it. In America it is a common practice to ſprinkle Salt in layers upon hay when making it into hay-ricks, and it is found to aſſiſt in preſerving the Hay, and to render the cattle healthy. If it were thought adviſeable to mix it with Sugar in this country, ſuch a mixture might be conſumed in this way in large quantities, and the mixture might be made by means of a cheap and ſimple apparatus, ſimilar to that employed by architects for mixing their mortar, called a mortar-cylinder mill.

Common Salt.

Should Parliament not think it adviſeable to allow the Farmer waſte Salt, Duty free, the Salt contained in Sea water might be uſed with advantage. Whenever an Exciſe Officer ſhall witneſs the complete ſolution of Sugar in Sea-water, I apprehend the Duty on Sugar may be remitted, without any danger of that Sugar ever being taken for any purpoſe of common conſumption: 30lbs. of Sea-water contain on an average 1lb. of common Salt; and would take up near 30lbs. of Sugar.

Sea-water.

On this ſubject I have conſulted ſome Farmers of great intelligence and experience, who are of the claſs of improved breeders, and feed both ſheep and cattle on an extenſive ſcale. Theſe gentlemen entered cordially into my views, and communicated to me the following particulars. They ſay that with Sugar Salt may be uſed in the proportion of one-ſixth with advantage; but that for the purpoſe of ſecuring the Revenue, the mixture might be one part Salt, one part Train Oil, and 10 parts of Sugar. From my own experiments, I am perſuaded, that leſs than 5 per cent. of Train Oil would effectually prevent Sugar from ever being uſed for domeſtic purpoſes. Theſe gentlemen are of opinion, that the Salt cauſes a quick circulation of the fluids, and

Salt and Oil.

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and that Chalk, which has long been given with Salt to calves, acts upon this principle. The Salt induces the calf to lick up the chalk, but the improvement in the colour of the fleſh may be owing to the Salt impelling the fluids, which otherwiſe, from a calf's confinement, would be ſtagnant. *Mr. Parkes.*

I next tried Salt Petre with Sugar, and made ſeveral experiments with it; but it appeared to me that the quantity neceſſary to alter the flavour of the Sugar ſufficiently, would be too dear for the uſe of the Farmer. Salt Petre

I then tried Aſſafœtida; 112 grains of Sugar were mixed with a quarter of a grain of this Gum in ſolution. This rendered the mixture ſo ſtrong in flavour and ſmell as to make it unfit for any common purpoſe; but whether this offenſive property could be ſufficiently diſguiſed for cattle by the mixture of other food can only be known by trial. It would coſt about *4d.* per cwt. only to treat Sugar thus with Aſſafœtida. Aſſafœtida.

Many other experiments were made; but as their reſults did not ſeem to bear ſo much on the queſtion as I expected they would, I forbear to take up your time by reciting them.

In addition to thoſe ſubſtances on which I have operated, ſeveral others have occurred to me; but it would depend upon the taſte of the cattle, whether any of them could be brought into uſe. The articles I allude to are, Rape Oil, Whale Oil, Foot Oil, Horſe Turpentine, Coal Tar, Common Tar*, the Gall of Animals, Blood, Wood Aſhes, Soap Lye, Madder, Wormwood, Gentian, Quaſſia, &c. in decoction, and the reſiduum procured from makers of Oil of Vitriol, called Sulphur Aſhes.

In this liſt I have not adverted to Urine; but I am inclined to think that, all things conſidered, this might be the beſt to mix with Sugar, to prevent its getting again into common conſumption. If Farmers were allowed Sugar Duty free, on condition of an Officer of Exciſe ſeeing a certain Quantity of Urine mixed with every cwt. of the Sugar, there could, I think, be no danger of the Farmer ever uſing it for other purpoſes than thoſe for which Government would allow him to draw the Duty. Beſides, the loathſome nature of Urine is ſuch that the quantity might ſafely be fixed ſo low that there would be no danger of the cattle not eating the Sugar, when mixed with a large portion of other food. The beneficial effect of Urine upon horſes is ſo well known that it has become a common practice with grooms, whenever they want to [illegible] remarkably fine coat, to mix Urine in the manger with his Corn. Urine.

Chaff might be uſed by feeders of cattle. Sugar ſtained with Oil might be mixed with Chaff, as another preventative. Beſides as Chaff is naturally aſtringent, the quantity of Chaff that can now be given to cattle is limited. By mixing ſuch [illegible] might be uſed, and more Sugar alſo might be given to cattle than they could otherwiſe bear. Such a mixture would be much cheaper than feeding in the uſual way with oil cake, on account of the fattening property of Sugar, and the ſmall value of Chaff. The largeſt ſhew Ox ſuppoſed to have been ever fed in England, I am told is now fattening by Lord Talbot in Staffordſhire, and that a part of his food is Treacle. Horſes, Oxen, and Sheep, prefer the ſweeteſt vegetables, and thrive beſt with ſuch food. Hence the Swediſh Turnip, now ſo generally cultivated, is preferred to the old ſorts, the Swediſh containing one fourth more Sugar. Chaff and Oil.

There are many teſtimonies on record to the nutritious properties of Sugar. Monſ. Lennes, firſt ſurgeon to the late Duke of Orleans, relates the following circumſtance: "A veſſel," ſaid he, "laden with Sugar, bound from the Weſt Indies, was becalmed for ſeveral days on her paſſage, during which, the ſtock of proviſions was exhauſted. Some of the crew were dying with the ſcurvy, and the reſt were threatened with death by famine. In this emergency recourſe was had to the Sugar. The conſequence was, the ſymptoms of the ſcurvy went off, the crew found it a wholeſome and ſubſtantial aliment, and returned in good health to France".

It is related, that Sugar given alone, was found to fatten horſes and cattle, during the war before laſt in St. Domingo, for a period of ſeveral months, in which the exportation of Sugar and the importation of Grain were prevented by the want of ſhips.

According to Dr. Ruſh, Sugar has the moſt favourable effect on the animal economy; and that eminent phyſician, Sir John Pringle, remarked, that the plague has never been known in any country, where Sugar compoſes a material part of the diet of the inhabitants.

Sugar has this advantage over moſt kinds of aliment, that it is not liable to have its nutritious qualities affected by time or weather; hence it is preferred by the

* Mr. Davy has ſuggeſted alſo, "Petroleum" and as an aſtringent, Terra Japonica.

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Mr. Parkes.

Indians in their excurſions from home. They mix Maple Sugar with an equal quantity of ground Indian Corn, and pack the mixture in little baſkets, which frequently get wet in travelling, without ever injuring the Sugar. A few ſpoonsfull of this mixture, in half a pint of Water, afford them a pleaſant and ſtrengthening meal

Damaged Meal.

Another way of uſing Sugar for Cattle has occurred to me: that is, to mix it with various kinds of damaged Meal, ſuch Meal as would be totally unfit for human conſumption. Or a mixture of damaged Barley Meal, Oat Meal, damaged Flour, Rape Cake, or Linſeed Cake might be made, and then baked with Sugar into Bread. This would form a kind of Gingerbread, with which cattle might be fed very cheaply. The trial perhaps might be made at His Majeſty's bakehouſe at Deptford. A large quantity of the different kinds of damaged Meal is annually baked in London into what is called Dog-Bread, for kennels, &c. The bakers of that would eaſily come into the way of baking this alſo. Horſes at ſea will eat ſhip-biſcuit; this is well known to mariners. Should there be any difficulty in getting cattle to eat this new kind of ſweet Bread, it might at firſt be ground for them.

I have been induced to ſuggeſt this method of uſing Sugar for cattle, and ſome others mentioned above, becauſe I conceive it would be a deſirable thing, ſhould Government give Sugar to Farmers free of Duty, to allow them an option in the articles to be employed for the deterioration of the Sugar. This would tend to bring feeders of cattle ſooner into the general uſe of it, and indeed different localities may perhaps require ſomething of the kind, in order to occaſion a general conſumption.

Charcoal.

As for Charcoal, I am inclined to think that it could not be employed for ſuch a purpoſe, for the following reaſons.

1ſt. Before Charcoal could be ſo uſed, it muſt be finely levigated, and levigated Charcoal cannot be had but at a conſiderable expence.

2d. I apprehend that Charcoal cannot afford any nutriment to Cattle, and that probably it would be prejudical to the animal economy.

3d. The mixture of Charcoal with Sugar, I imagine, would not prevent that Sugar from being afterwards fraudulently uſed for the Still, for it is a common practice with Rectifiers to mix Charcoal with coarſe Spirit, this being found to improve its flavour.

4th. Charcoal being mixed with Sugar, could never prevent the uſe of the Sugar for general conſumption; for this ſubſtance might be ſeparated with the greateſt eaſe. All that would be neceſſary would be to diſſolve the Sugar in Water, and ſeparate the Charcoal by filtration.

I now proceed, in conformity with your ſuggeſtion, to make a brief recapitulation of the moſt material parts of this Paper, and to endeavour to enumerate, and to place in one point of view, thoſe articles recommended above, which appear to me to be beſt calculated to anſwer the deſired purpoſe:

Cauſtic Potaſh,	Oil of Hartſhorn,
Train Oil,	Linſeed Oil,
Waſte Salt,	Sea Water,
Mixture of Salt and Oil,	Aſſafœtida,
Urine,	Chaff and Refuſe Oil.

Any of theſe, in my opinion, might be employed with perfect ſafety to the Revenue.

I have the honour to be,
Gentlemen,

Your faithful and obedient humble ſervant,

SAMUEL PARKES.

Haggerſtone Chemical Works,
June 16th 1808.

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Martis, 14° die Junii 1808.

Lord BINNING in the Chair.

RICHARD FREWIN, Eſq, *called; and examined by the Committee.*

Mr. Frewin.

WHAT is the preſent Duty on Muſcovado Sugar?—The Duty paid is £.1. 7*s.* per cwt; but there is alſo a Duty impoſed of 3*s.* per cwt. which has been ſuſpended ever ſince it was impoſed.

What are the preſent Duties upon Refined Sugar imported into Great Britain?—The preſent Duty upon Refined Sugar imported into Great Britain, is £.8. 8*s.* per cwt.

What is the Duty upon Clayed Sugar?*—I conceive we ſhould conſider that as Refined that had been in Lumps or Loaves, and if we had any doubt upon the point of its being Refined, we ſhould call in the aſſiſtance of the trade. In the Lump or the Loaf it is clear; but if it could not be diſtinguiſhed, we ſhould call in the aſſiſtance of the trade to determine the fact.

* The Duty now paid is £1. 11*s.* 6*d.* the cwt.

What is meant by Refined Sugar?—We ſhould conſider, I conceive, at the Cuſtom-houſe, Sugar in Lumps or Loaves to be refined; it muſt have gone through the proceſs of refinement in certain pans. As to importation, we never had any Refined Sugar imported.

Can you inform the Committee what Duty upon Refined Sugar would be equivalent to the preſent Duty on Muſcovado Sugar?—I apprehend upon common Refined Sugar about double the preſent Duty on Muſcovado.

Can you diſtinguiſh the different degrees of refinement, ſo as to proportion the Duty to them?—I think the Officers might ſo diſtinguiſh.

Can you ſtate what Duty would be ſufficient upon Sugar of a higher degree of refinement than the common?—I ſhould ſuppoſe about from 12*s.* to 14*s.* extra, upon the double Refined.

Would there be any great difficulty in aſcertaining the degree of refinement?—I apprehend not. It is done at preſent by means of ſample Loaves left at the Cuſtom-houſe, in order to aſcertain the Bounty, which now is different according to the ſtate of refinement.

Do you foreſee any probability of a Duty ſo impoſed, in proportion to the degree of refinement, being evaded?—No, I do not.

Do you foreſee that there would ariſe any greater difficulty or riſk to to the Revenue, from the permiſſion to import Sugar in a ſtate of refinement than in the Clayed or Raw ſtate?—There would be no great difficulty in the aſcertainment of the quality.

Do you apprehend that it would favour the increaſe of Smuggling, if the Duties were laid in this manner?—That might be guarded againſt in the Act of Parliament, by certificates of the produce there, and by confining the importation to caſks of a certain ſize.

Do you think ſuch an alteration in the Duty would give any additional facility to Smuggling?—I ſhould think not.

Would it diminiſh the temptation to ſmuggle?—I do not know that it would.

What would be the gain by Smuggling, in the preſent caſe, per cwt.?—The whole of the Duty, viz. eight guineas per cwt.

What would be the gain by Smuggling, if the Duty were reduced?—The gain would be reduced in ſame proportion.

Is the Bounty upon Refined Sugars, exported from this country, different in proportion to the degrees of the refinement?—There is a difference in proportion to the difference of the degree of the refinement.

Is

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Mr. Frewin. Is any difficulty found in aſcertaining whether Sugar exported ſhall receive the higher or the lower Bounty?—I believe there may have been, but I am not quite prepared to anſwer that queſtion; the difference I believe is of recent date. It is 1*cs.* per cwt.

Do you apprehend, that any injury would ariſe to the Revenue by allowing a Drawback of the whole of the Duty now paid on Muſcovado Sugars, if employed in the feeding of Cattle, provided means could be deviſed of preventing that Sugar on which the Drawback ſhould be ſo allowed from returning into common conſumption, or being employed in making Waſh for diſtillation?—I ſhould think a meaſure of that kind would be very dangerous to the Revenue, and it would be hardly poſſible to deviſe means to prevent its coming back into conſumption.

If then ſuch means could be deviſed, does the apprehenſion of any other danger to the Revenue at preſent ſtrike you?—I am not prepared to ſtate any; but I think, upon conſideration, it might be attended with much danger, and there might be other reaſons beſides what I have ſtated. [*The Witneſs requeſted time to conſider the queſtion, and to tranſmit to the Committee any obſervations which might occur to him upon the ſubject.*]— See p. 416.

[Adjourned.

Mercurii, 15° die Junii 1808.

Lord BINNING in the Chair.

JOHN CRAVEN, Eſq. *called; and Examined by the Committee.*

Mr. Craven. Do you ſee any and what objection to the reduction of the prohibitory Duty now impoſed upon the importation of Refined Sugar from the Weſt Indies to a Duty equivalent to the preſent Duty on Muſcovado Sugar?—If there were a reduction of the prohibitory Duty on Refined Sugar, which was intended to encourage and protect the manufactury at home, and connected with other regulations with the ſame view, it (the manufactory) is and has been many years eſtabliſhed;—extenſive buildings have been erected, calculated ſolely for that purpoſe, which with the requiſite utenſils, form a plant that has coſt very large ſums of money;—the workmen employed, are a particular claſs of men, and it requires much time to qualify them for the buſineſs;—the quantity of Sugar, and the length of time it remains under proceſs, renders a large capital neceſſary; this capital, and the ſteady demand for the ſupply of the manufactory, is of great uſe and advantage to the importers of Sugar:—if then any material importation of Refined Sugar ſhould take place in conſequence of the propoſed reduction of Duty, I am of opinion the Britiſh Refinery would be injured in proportion to the amount of that ſupply, becauſe the quantity of Refined Sugar produced, has been at all times equal to the demand;—at preſent it very much exceeds it. To remove the now eſtabliſhed Manufactory to the Weſt Indies is impoſſible, and in my opinion, there are inſurmountable obſtacles to its being carried on there for the ſupply of this country. I think alſo there is much danger in altering the exiſting Laws that regulate the Sugar trade, both to the Planter, the Refiner, and the Revenue? but if it ſhould be thought expedient to make the experiment, compenſation to the Refiner, whoſe property is now engaged, will doubtleſs accompany the meaſure. From the climate and habits of the inhabitants of this country, there is a conſumption for the inferior ſweets, called Baſtard Sugar and Moloſſes, which enables the Refiner to purchaſe Sugar in the Muſcovado ſtate. The Colonies of France, Spain, and Portugal, are obliged to clay the Sugar, becauſe there is no refinery in the mother country calculated to receive them. This I believe is contrary to their intereſt; for during the period we had the Iſland of Martinique, many of the Planters diſcontinued the claying of their Sugars, and ſent them in the raw ſtate.

Can you give any information to the Committee, as to the value of buildings and utenſils employed in the refining of Sugar in Great Britain;—I can ſpeak to the London Refinery in a general way; to the reſt of the kingdom I cannot. We calculate in London the number of Pans that are employed. They vary from 250, I believe, to

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to 350 and 360, and we calculate the value in buildings and utenfils at £.3000 per Pan. I include only the fimple building and utenfils. I believe about 300 Pans are now employed, and that, at £.3,000 per Pan, amounts to £.900,000. *Mr. Craven.*

Can you ftate whether thofe countries which have or have had Sugar Colonies permit or permitted the importation of Refined Sugar from thofe Colonies?—I believe Refined Sugar in all thofe countries is and has been rigoroufly prohibited. In Refined Sugar, I do not include that commonly known by the name of Clayed Sugar.

Be fo good as to defcribe exactly what is meant by Refined Sugar, and what is meant by Clayed Sugar?—By Refined Sugar I mean fuch as has undergone the operation of clearing in the pans, from which the impurities are extracted, and fubfequently, by means of Clay, rendered of one uniform whitenefs throughout. On Clayed Sugar I fpeak not from my knowledge, but from information I underftand that Clayed Sugar has only been fubmitted to the operation of Clay.

If the importation from the Weft Indies of large Lumps in the loweft ftate of refinement, and afterwards broken to pieces and reduced into a ftate of Powder Sugar, were to be permitted, what effect do you apprehend that would produce upon your manufacture?—It would exceedingly injure, if not deftroy it.

What proportion of your manufacture either for Home Confumption or for Exportation do you apprehend would be thereby taken out of your hands?—It would endanger 9-10ths of the trade, or more.

Would Sugar imported in the fhape of Lumps be of no ufe in the Refinery?—It might be ufed to make double Refined Sugar.

Is that the only ufe to which it could be applied?—By the Refiner.

Do you fuppofe that the inhabitants of the Weft Indies poffefs any advantages for the refining of Sugar which Refiners in England do not poffefs?—My opinion is, that they do not, and are fubject to many difadvantages in that refpect.

Why do you apprehend that the Refiners of this country would be materially injured by the competition with the Refiners in the Weft Indies, who poffefs no advantages over them, and are fubject to conftderable difadvantages which they (the Refiners in this country) are not expofed to?—Any increafe in the quantity of Refined Sugar at market by importation would, as I have faid before, be injurious in proportion to the quantity of that fupply.

As you ftate that refining in the Weft Indies would be encouraged by no advantage, and would be difcouraged by many difadvantages, do you fuppofe that it poffibly could furnifh fuch importation?—That would depend on the quantum of Duty fuch Refined Sugar is liable to, and the poffibility of that Duty being evaded.

Suppofing that Duty to be double the Duty laid upon Mufcovado Sugar, and that no evafion of that Duty were to take place, could it then have fuch an effect?—I am of opinion only to a certain extent.

To what extent?—I cannot tell.

Why do you think it would take place at all?—I think it is poffible it would not take place at all.

Do you think the Duties could be fairly collected?—I think not.

What would be the difficulty of collecting the Duties fairly?—The difficulty of diftinguifhing between Clayed and Refined Sugar, without thofe checks at prefent adopted by the Cuftoms on the exportation of Refined Sugar.

Does not that rifk to the Revenue at prefent exift from the power of introducing Sugars refined in the fhape of Clayed Sugars?—It certainly does.

Would it exift in a great degree if the Duties were taken off the Sugars refined in the Weft Indies?—I think it would.

The Duty on Refined Sugars imported from the Iflands being reduced, would the temptation be greater?—At prefent the importation of Refined Sugar is probibited by an exceffive Duty; what might be the operation of a reduction I cannot ftate.

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Mr. Craven.

If the benefit of evading the Duty would be diminiſhed from eight guineas the preſent Duty, to 54*s.* the propoſed Duty, muſt not the temptation to evade it, be alſo diminiſhed?—The preſent Duty to which ſuch Refined Sugar is ſubject prevents its being attempted.

Do you know that there exiſt Refineries in the Iſland of Jamaica at preſent?—Yes, for the conſumption of Jamaica, but I believe they do not export any.

In what way would a Duty on Sugar imported in Loaves be liable to evaſion?—I am of opinion that in that ſhape it is not liable to evaſion.

Would the competition of Refineries eſtabliſhed in the Colonies, which you have ſtated to poſſeſs no local advantages, injure the Refiners more than the competition of Refineries eſtabliſhed by the ſame or any other individuals in England?—The effect of any further extenſion of the Refineries of England we know. The conſequence of the eſtabliſhment of Refineries in the Weſt Indies we can only conjecture.

If there would be no injuſtice in the eſtabliſhment of Refineries by the Weſt Indians in England, what injuſtice would be done by the eſtabliſhment of Refineries in the Weſt India Iſlands, where they would poſſeſs no advantages, and be liable to many obſtacles?—I ſee no injuſtice.

Are the workmen in your trade chiefly aliens?—Yes, thoſe employed in London are chiefly Germans.

Is it your opinion that the art of refining Sugar is carried on in Great Britain with as much ſkill and ſkill as in any part of the world?—I think it is.

Has the art been greatly improved during your experience by means connected with the extent and permanency of the eſtabliſhment where it is practiſed?—It has been very much improved.

Has the capital embarked in this eſtabliſhment been materially encouraged by knowing that Sugar, the produce of the Britiſh Colonies could not be imported in any ſtate of refinement higher than that of Clayed Sugar?—It has been very much increaſed.

Owing to the progreſs made in the refining art, and to the regulations under which Refined Sugar may be exported from Great Britain, do you conſider that you could ſtand an advantageous competition with the Refineries abroad, even although they ſhould purchaſe their raw material at ſome ſhillings leſs per cwt. than you could?—I think we could.

Do you think then, that if acceſs to foreign markets were open, there might be under the exiſting eſtabliſhment for Refinery, and under the exiſting Laws, an advantageous export of ſome kinds of Refined Sugar from Great Britain to thoſe markets, at the ſame time that Raw Sugars could not be exported to ſuch markets with advantage?—I think ſo. There is no doubt of it.

How could the interference with the Refinery of this country, in the proceſs of converting Muſcovado Sugar into Lump Sugar to the extent likely to ariſe from the propoſed permiſſion, endanger 9-10ths of the trade?—By furniſhing this country with Refined Sugar from the Weſt India Iſlands, inſtead of being made in Great Britain.

In ſpeaking of the proportion of trade which the propoſed meaſure would endanger, have you ſuppoſed that it ſhould go to the length of ſupplying the whole of the Refinery excepting the operation of double refining?—I have.

JAMES BELL, Eſq. *called; and Examined by the Committee.*

Mr Bell.

IN what buſineſs are you engaged?—I am a Director of the Phœnix Fire-Office, which was inſtituted by the Sugar-refiners of London, and I have carried on the buſineſs of a Sugar Refiner for many years.

Do you ſee any and what objection to the reduction of the prohibitory Duty now [illegible] the importation of Refined Sugar from the Weſt Indies to a Duty equi-

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valent to the preſent Duty on Muſcovado Sugar?—If there was a reduction of the prohibitory Duty upon Refined Sugar, I conceive it muſt, if the importation were carried to any extent, diſcourage the Britiſh manufactory in proportion as it would encourage the Weſt Indian. *Mr. Bell.*

Do you conceive that the Inhabitants of the Weſt Indies poſſeſs any local advantages which the Refiners in England do not poſſeſs?—They poſſeſs the local advantage of having the Raw material handed into the manufactory without the expence of Freight, Inſurance and Commiſſion; but then in return for that they would have, I conceive, an extra expence for utenſils, buildings, and incidental charges upon the manufactory.

Are you aware that they muſt be ſubject to the expence of Freight, Inſurance and Commiſſion on the tranſport of Refined Sugar to England?—They would have the expence of the Freight of Refined Sugar to England, but it would be leſs in quantity; and as Freight is paid more upon bulk than upon value, the Freight would become leſs.

Do you know from your own knowledge that there would be any ſaving, in point of Freight, to the Planter, in conveying the Sugar in a refined ſtate rather than in a raw ſtate?—I do not pretend to be a judge of the relative Freights between Raw Sugar and Refined Sugar. Much would depend upon the Package and form in which it was ſent.

Then you are not quite certain that much advantage in freight would ariſe to the Planter?—He would be paying freight upon a material where the fineſt part only was ſent, and the crude part left behind.

Is it not poſſible, that, from the difference of the mode of package, the freight upon Refined Sugar may be as great as upon Raw Sugar, and that the former may take up as much room as the latter?—Much will depend upon whether they are ſent home in whole lumps, or cruſhed and filled into hogſheads.

But if ſent home in the ſhape of Loaves?—If ſent home in the ſhape of Loaves the bulk will be greater, but the weight leſs in proportion to the bulk.

You have ſtated advantages and diſadvantages; would the advantages overbalance the diſadvantages, or the contrary?—I do not pretend to judge of that.

Then you do not know whether the Planter would poſſeſs upon the whole any local advantages or not?—As the refining of Sugar has been in this country a trade by which the manufacturer has gained a profit, it may be ſuppoſed that if the ſame trade is carried on in the Weſt Indies with ſome advantages and ſome diſadvantages as before mentioned, profits may be made ſimilar to thoſe that have been gained by the Britiſh Manufacturer.

Would the competition of Refineries eſtabliſhed in the Colonies injure the Refiners in England more than the competition of Refiners eſtabliſhed by the ſame or any other individuals in this country?—A competition of Refiners in the Colonies would certainly be the moſt injurious and miſchievous, becauſe in this country the Refiners are more numerous than can be employed at preſent; this has been the caſe for theſe two years, and if you were to eſtabliſh another body of men with new capitals, and to begin the trade with whatever advantages might ariſe, there would certainly be a competition that would lead to a ſtill greater diſcouragement of the Britiſh Refinery, which already languiſhes; and if a freſh ſet of competitors were to ſtart, they would produce a ſtill greater diſcouragement of that valuable manufactory than it labours under at preſent by the ſuſpenſion of the export trade.

[Adjourned.

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Jovis, 16° die Junii 1808.

Lord BINNING in the Chair.

RICHARD FREWIN, Eſq. *again called and Examined by The Committee.*

Mr. Frewin.

DO you apprehend that any injury would ariſe to the Revenue by allowing a drawback of the whole of the Duty now paid upon Muſcovado Sugar, if employed in the feeding of Cattle, provided means could be deviſed of preventing that Sugar on which the drawback ſhould be ſo allowed from returning into common conſumption, or being employed in making Waſh for the Diſtilleries?—If ſuch means could be deviſed, the Revenue of Cuſtoms would not be liable to any injury; I ſhould think it more eaſy to deviſe means to prevent Sugar being reſtored for domeſtic uſes than for Diſtillation.

If ſuch means could be deviſed, does the apprehenſion of any other danger to the Revenue at preſent ſtrike you?—None.

JAMES BELL, Eſq. *again called and Examined by The Committee.*

Mr. Bell.

WOULD the competition of Refineries eſtabliſhed in the Colonies injure the Refiners in England more than the competition of Refineries eſtabliſhed by the ſame or any other individuals in this country?—They certainly would, in as much as it might be preſumed that perſons inveſting Capital in the Weſt Indies to enter into competition with the Refiners in this country, would no doubt do ſo from motives of advantage, which they themſelves muſt be better acquainted with than I am; whereas if a competition were to ſtart at home they would be governed by the ſtate of the manufactory encouraging their views.

Do you mean that the danger would conſiſt in their being able to underſell the Refiners in England?—I cannot ſay whether the injury may ariſe from their being able to underſell, or merely from the competition of one ſet of Capitaliſts againſt the other, becauſe they might both ſell at the ſame price, and loſe at the ſame time equal ſums.

Would they be likely both to continue to ſell at a loſing price?—They might continue to ſell, though at a loſing price; and thoſe individuals who ſhould be mad enough to ſtand the conteſt, and could not bear the loſs, muſt ſubmit to ruin.

Is it agreeable to you to ſtate the general outline of the proceſs of the Sugar Refinery?—If a Sugar-houſe begins upon Raw Sugar, they firſt boil the fineſt Raw Sugar, which is made into fine Loaves; after that, the next proceſs is upon an inferior Sugar, the ſyrups of the former being boiled with it which produces alſo Loaves of a lower quality; the Pans are then charged with a Sugar of a ſtill lower quality than either of the former, to which ſome part of the former ſyrups is added, and from this Lumps are produced which are coarſe and of a large ſize. The ſyrup of the Lumps is boiled into a Sugar which is called Baſtard Sugar, which is ground in mills to a powder; the ſyrup of the Baſtard Sugar is Molaſſes, in which the proceſs ends. If a Sugar houſe begins with Lumps, the Pans are charged with that ſpecies of Sugar, from the boiling of which are produced double Loaves, which are called Double Refined Sugar. The Pans are next charged with fine Raw Sugar as before, from which are produced fine Loaves, and the proceſs goes then on in a ſimilar way as before mentioned.

What proportion of the trade conſiſts in making Lumps only compared with the whole of the trade?—I do not know of any houſe that makes Lumps only, for the proceſs cannot be carried on, with any degree of advantage, if the different ſort of goods are not made.

If a certain proportion of Lumps were to be imported, would the Refiners prefer purchaſing them, or would they prefer making their own Lumps?—In general the Refiners prefer uſing their own Lumps, provided they have ſufficient ſtrength. It depends upon the quality and the mode of manufacturing them.

But

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Mr. Bell.

But ſuppoſing them to be properly manufactured, would it be for the advantage of the Refiners, in many caſes, rather to purchaſe than to make their Lumps?—In many inſtances the Refiners boil their Lumps for the purpoſe of Double Loaves, upon a particular principle of their own. It ſometimes might be to his advantage to buy and ſometimes to melt his own: it depends upon the particular ſituation of the markets.

Could the Baſtard Sugar be melted again, and what prevents the proceſs beginning with the Baſtards?—If the Baſtards were melted again there would be a leſs quantity of Sugar produced, and the remainder would be Molaſſes.

If one cwt. of Muſcovado Sugar is brought into Lumps, what is the ordinary produce?—The ordinary produce is ſtated at 50 per cent.

What is the produce of Baſtards?—It depends entirely upon the quality of the Sugar and upon the ſkill of the workmen.

Can you give any information to the Committee as to the value of buildings and utenſils employed in refining Sugar in Great Britain and Ireland?—The Sugar Refinery of London, about two years ago, conſiſted of about 364 Pans; and as this queſtion can be anſwered beſt by a calculation made by the Pans, I eſtimate the utenſils and buildings would come to about £. 1,092,000; in the out-ports of Great Britain there may be about 180 Pans, the buildings and utenſils of which may amount to about £.540,000; I compute that there are about 60 Pans in Ireland, the buildings and utenſils of which may be valued at £.180,000; making in the whole £.1,812,000 for buildings and utenſils.

What proportion of thoſe Pans do you apprehend are now out of employ?—I cannot ſay what number are out of employ in the out-ports and in Ireland, but in London there are 70.

Suppoſing an equal proportion to be out of employ in the out-ports and in Ireland as is out of employ in London, how many Pans will there remain that are now actually employed?—Upon that ſuppoſition there may be about 488 in employ.

Eſtimating theſe according to your former eſtimation, what is the value of the buildings and utenſils now employed in the Refinery eſtabliſhment?—It would amount to £.1,464,000.

What is the value of the buildings and utenſils ſeparately?—The buildings I rate at two-thirds, and the utenſils at one-third.

This is then the whole value of buildings and utenſils now in employ. Be ſo good as to ſtate the value of thoſe which were employed two years ago?—In London they will amount, by my calculation, to £1,092,000; in the out-ports of Great Britain £.540,000; and in Ireland £.180,000; together in the whole £.1,812,000.

Then you ſtate the value of the buildings and utenſils out of employ at £.210,000 in London, and of thoſe in other parts of the Empire at £.138,000?—Yes.

Can you give any idea of the extent of Capital employed in this trade, calculating it at ſo much per Pan?—In London, I compute that £.6,000 per Pan is about ſufficient, excluſive of buildings and utenſils; but in the country it may take, in ſome inſtances, £. 10,000 and £. 12,000. per Pan; for in the country they give longer credits, frequently ſix and ſeven months.

Is that Capital, of which we are now ſpeaking, wholly employed in the purchaſe of Sugar?—Wholly employed in the purchaſe and manufacture of Sugar, and excluſive of utenſils and buildings.

What is the loſs of weight by drainage ſuſtained in the paſſage of Sugars from the Weſt Indies to this country?—From the obſervation that I have made of the vacant room in numbers of the hogſheads, I compute the loſs of weight, in many inſtances, as very conſiderable; but where the Sugars are properly cured or made dry, the hogſheads are found quite full, and little or no appearance of having loſt much weight. I have been informed that the drainage on the paſſage is ſo great upon particular Sugars, which are not properly cured previous to their being ſhipped, that immenſe quantities of Syrup and Molaſſes are pumped out of the ſhip. I have even conſidered this circumſtance as one of the great ſources of miſchief and loſs to the Planters; and I am convinced, that if more care were taken in curing their

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Mr. Bell.

Sugars, previous to their being ſhipped, that the ſaving might go greatly towards that profit which the Planter would conſider an adequate recompence for his Capital.

Are you aware, that that quality of Sugars which expoſes them to drainage, depends not only upon the want of care in curing, but alſo upon the nature of the ſoil on which they have been grown?—I conceive; that if Sugars are properly cured, and have ſufficient time given them for draining, previous to their being ſhipped, that the quality of the Sugars is not the cauſe of the loſs nor the nature of the ſoil on which they are grown.

Do you give this opinion from experience and local knowledge, or from Information?—I ſpeak from my knowledge of the quality and properties of Sugars when manufactured with ſufficient ſkill and care, and from information gathered from others.

Do you know whether the quantity of Clayed Sugar imported has of late years been increaſed or decreaſed?—I believe it has decreaſed.

Can you form any opinion as to the reaſon of it?—I have underſtood that it has not been profitable to the Planter, otherwiſe I ſhould ſuppoſe it would not have decreaſed, for the quantity of Muſcovado has increaſed.

Do you know why?—I conceive, that as the Britiſh Planters are met by Refiners in this country for the manufacture of their Muſcovado Sugars, which is not the caſe in France and Portugal, and other foreign States, they find it their intereſt to ſend it home in a raw ſtate.

If Sugar were to come home in the clayed ſtate, would the drainage be avoided?—It would.

Does it follow, that the loſs or expence to the Planter, by claying his Sugars, would outweigh that occaſioned by the drainage?—I am no judge of what advantage or diſadvantage there may be in claying of Sugar in the Weſt Indies.

If Refineries ſhould be eſtabliſhed in the Weſt Indies for the purpoſe of exporting their produce to the mother country, do you apprehend that ſyſtem would make any alteration in the relations between the Planters and the Merchants?—If it is to be underſtood that the Refineries are to be carried on by other perſons than the Planters themſelves, with ſeparate Capitals, I ſhould ſuppoſe the independent Planters may ſell their Sugars to thoſe manufacturers in the Weſt Indies, inſtead of conveying them to the London Merchants as heretofore, and thoſe Planters who were bound to ſend their Sugars to the London Merchants, might in ſome caſes, as is often inſinuated alſo ſell their Sugars to thoſe manufacturers inſtead of fulfilling their engagements to thoſe to whom they are bound to conſign their Sugars.

Do you not apprehend that Sugars refined in the Weſt Indies would be conſigned to the ſame claſs of Merchants in London that the Raw Sugars are?—If the manufactory is carried on by another claſs of perſons, thoſe perſons will have their own connections.

[Adjourned.

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Lunæ, 20° die Junii 1808.

Lord BINNING in the Chair.

WILLIAM JACKSON, Esq. *called; and Examined by The Committee.*

Mr. Jackson.

THE Committee having under their conſideration the propriety of reducing the Duty on Refined Sugar, imported from the Weſt India Iſlands, to a Duty equivalent to that on Raw Sugar; you are requeſted to ſtate what occurs to you upon the ſubject?—The refining of Sugar is a ſubject with which I am but little acquainted: I do not even know how far it is practicable in the Weſt India Iſlands; and if it be, it may, from circumſtances with which I am unacquainted, be in other reſpects objectionable. A few years ago there were 140 Sugar Refineries in England, and any portion of their trade being transferred to the Colonies would, I conclude, be detrimental to the Perſons engaged in that buſineſs. In my former Evidence I mentioned that a large portion of the Molaſſes made in England were uſed in private diſtillation; and believing as I do, that Molaſſes is the only article which the private Diſtiller can conveniently employ, I am inclined to think that private diſtillation would be materially checked if Molaſſes ſhould become very ſcarce. I preſume therefore that the Exciſe Revenue, ariſing from Britiſh-made Spirits, would be conſiderably improved if the private Diſtiller were deprived of the article Molaſſes, with which alone he now carries on his clandeſtine trade.

Would there be any riſk of the importation of Molaſſes produced from Refined Sugar in the Weſt Indies, which would ſubject the Revenue to the ſame loſs that it is now ſubject to from the Molaſſes produced by the Refiners in this country?—If Molaſſes were imported from the Weſt Indies, and could be rendered to the private Diſtiller as cheap, or nearly as cheap as he now purchaſes them of the Sugar Refiners, the benefit which might be expected from a ſcarcity of Molaſſes would be deſtroyed.

Would it be worth the while of the Planter to import his Molaſſes into this country, when he has it in his power to manufacture them into Spirits in the Colonies, on which he pays a ſmaller freight?—I ſhould think not; but I am not ſufficiently acquainted with the trade to ſpeak decidedly upon the ſubject.

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